

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2012 Army **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>				PE 0604780A: <i>Combined Arms Tactical Trainer (CATT) Core</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	25.241	27.670	22.226	-	22.226	17.550	17.874	23.724	21.373	Continuing	Continuing
571: <i>CLOSE CBT TACT TRAINER</i>	4.690	4.668	4.321	-	4.321	4.213	4.576	4.527	7.517	Continuing	Continuing
577: <i>Gaming Technology in Support of Army Training</i>	0.914	0.937	1.429	-	1.429	1.334	2.020	0.881	1.478	Continuing	Continuing
582: <i>SYNTHETIC ENVIR CORE</i>	17.245	20.073	13.927	-	13.927	9.450	8.587	15.794	9.673	Continuing	Continuing
585: <i>AVIATION COMBINED ARMS TACTICAL TRAINER</i>	2.392	1.992	2.549	-	2.549	2.553	2.691	2.522	2.705	Continuing	Continuing

**Note**

Change Summary Explanation: FY12 includes the following:

- decrease of \$0.315 million for project 571 - Close Combat Tactical Trainer
- increase of \$0.495 million for project 577 - Gaming Technology in Support of Army Training
- increase of \$0.235 million for project 582 - Synthetic Environment Core
- increase of \$2.549 million for project 585 - Aviation Combined Arms Tactical Trainer

**A. Mission Description and Budget Item Justification**

The Combined Arms Tactical Trainers (CATT) represent a family of combined arms simulation systems designed to support the Army's simulation-based Combined Arms Training Strategy. CATT enables units, from crew to the battalion task force level, to conduct a wide variety of combat tasks on a realistic, interactive, synthetic battlefield. CATT's combination of manned simulators and staff officer workstations enables units to train as a combined arms team in a cost effective manner. The initial CATT system is the Close Combat Tactical Trainer (CCTT) which provides the underlying baseline architecture and After Action Review (AAR) for CATT expansions, Pre-Planned Product Improvements (P3I) and system enhancements. The Reconfigurable Vehicle Simulator (RVS) variants support CCTT fixed sites to train combat convoy operations. Synthetic Environment (SE) Core provides for the expansion of the synthetic environment baseline to include enhanced interoperability and the products and infrastructure to support current and future combat operations and mission rehearsal required by the Contemporary Operating Environment (COE). The first synthetic environments to be expanded are the Aviation Combined Arms Tactical Trainer (AVCATT) and the CCTT for both the Active and Reserve components. Gaming Technology provides an application to train and rehearse convoy-operations, platoon level, mounted infantry tactics, dismounted operations, rules-of-engagement training, cross-cultural communications training, IED defeat training, route clearance, ground-air coordination, Unmanned Aerial Vehicle integration, and other small unit and individual training and mission rehearsal requirements. Platoon members can train in a common environment on geotypical or geospecific terrain. It is also possible to link Gaming technology to actual C4I systems and other CATT simulation systems to increase the utility and realism of the training. By practicing skills in CATT, units are able to make effective use of costly live fire and maneuver exercises, as well as train tasks deemed too hazardous to conduct in a live training environment. Fielded in both fixed site and mobile versions, CATT enables both Active and Reserve component units to prepare for real world contingency missions. By being able to use a wide array of training terrain databases and modify the behavior of the computer generated opposing

**UNCLASSIFIED**

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification: PB 2012 Army</b>	<b>DATE:</b> February 2011
---	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604780A: <i>Combined Arms Tactical Trainer (CATT) Core</i>
---	--

forces, CATT offers an unlimited array of training options to support the Army's many regional combat missions. The combination of tough field and live fire training, and realistic simulation training in CATT, is the formula to prepare Soldiers and their Leaders for the uncertainties they face in current combat operations in Iraq and Afghanistan, and larger Overseas Contingency Operations (OCO).

FY12 Project 571 core funding of \$4.321 million for CCTT enables the P3I for the Dismounted Soldier Systems in support of Infantry Brigade Combat Teams, Stryker Brigade Combat Teams, Airborne, Ranger and Special Forces Units and Heavy Brigade Combat Teams.

FY12 Project 577 core funding of \$1.429 million for Games for Training will integrate SE Core products and new commercial and government technology into the current gaming system.

FY12 Project 582 core funding of \$13.927 million for SE Core will provide for common terrain databases to be generated by the Terrain Database Center (TDC). The TDC continues development and refinement of the Standard Terrain Database Generation Capability (STDGC).

FY12 Project 585 core funding of \$2.549 million for AVCATT will develop the capability for AVCATT to interoperate with real and simulated Army Battle Command Systems (ABCS) such as Blue Force Tracker (BFT), Force XXI Command Brigade (FBCB2), Advanced Field Artillery Tactical Data Systems (AFATDs) and others.

<b>B. Program Change Summary (\$ in Millions)</b>	<b><u>FY 2010</u></b>	<b><u>FY 2011</u></b>	<b><u>FY 2012 Base</u></b>	<b><u>FY 2012 OCO</u></b>	<b><u>FY 2012 Total</u></b>
Previous President's Budget	26.107	33.070	19.262	-	19.262
Current President's Budget	25.241	27.670	22.226	-	22.226
Total Adjustments	-0.866	-5.400	2.964	-	2.964
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.866	-			
• Adjustments to Budget Years	-	-5.400	2.964	-	2.964

**UNCLASSIFIED**

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army								DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604780A: Combined Arms Tactical Trainer (CATT) Core				PROJECT 571: CLOSE CBT TACT TRAINER			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
571: CLOSE CBT TACT TRAINER	4.690	4.668	4.321	-	4.321	4.213	4.576	4.527	7.517	Continuing	Continuing
Quantity of RDT&E Articles											
A. Mission Description and Budget Item Justification											
This program provides for Engineering and Manufacturing Development (EMD) and Pre-Planned Product Improvements (P3I) for the Close Combat Tactical Trainer (CCTT), which will enhance readiness for both Active and Reserve component forces to support the execution of current and future combat operations including Overseas Contingency Operations (OCO). The program develops a networked system of interactive computer driven simulators, emulators, and semi-automated forces that replicate combat vehicles and weapon systems, combat support systems, combat service support systems, and command and control systems to create a fully integrated, real-time collective task training environment. This trainer will allow Soldiers to practice Tactics, Techniques and Procedures (TTP) that, if performed on real equipment, would be too hazardous, time-consuming and expensive. These trainers enhance realism and allow Soldiers and Units to learn tactical combat lessons on maneuver, command and control, convoy operations, and improved teamwork for increased survivability. The P3I enhances CCTT's capabilities as a tactical trainer and maintains concurrency with fielded tactical equipment and force structure. These improvements will maintain interoperability with the Aviation Combined Arms Tactical Trainer (AVCATT), Army Battle Command System (ABCS), including Force XXI Battle Command Brigade and Below (FBCB2), and other simulation systems needed to execute training for current and future combat operations.											
FY12 core funding of \$4.321 million for CCTT enables the P3I for the Dismounted Soldier in support of Infantry Brigade Combat Teams, Stryker Brigade Combat Teams, Airborne, Ranger and Special Forces Units and Heavy Brigade Combat Teams.											
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2010	FY 2011	FY 2012	
Title: Government Program Management for the Close Combat Tactical Trainer (CCTT) program.								0.228	0.236	0.182	
								Articles: 0	0		
Description: Government Program Management for the CCTT program.											
FY 2010 Accomplishments: Supported government program management, engineering, technical, and contracting support, and continued operational evaluation support.											
FY 2011 Plans: Supports government program management, engineering, technical, and contracting support, and continues operational evaluation support.											
FY 2012 Plans:											

**UNCLASSIFIED**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Army		<b>DATE:</b> February 2011	
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604780A: <i>Combined Arms Tactical Trainer</i> (CATT) Core	<b>PROJECT</b> 571: <i>CLOSE CBT TACT TRAINER</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2010</b>	<b>FY 2011</b>
Supports government program management, engineering, technical, and contracting support, and continues operational evaluation support.			
<b>Title:</b> Engineering and Manufacturing Development (EMD) phase contract activity for the Close Combat Tactical Trainer (CCTT) Dismounted Soldier System.  <b>Articles:</b>  <b>Description:</b> Continue EMD phase contract activities for the CCTT Dismounted Soldier System.  <b>FY 2010 Accomplishments:</b> Development of the CCTT Dismounted Soldier System.  <b>FY 2011 Plans:</b> Development of the CCTT Dismounted Soldier System.  <b>FY 2012 Plans:</b> Enables the P3I for the CCTT Dismounted Soldier System in support of Infantry Brigade Combat Teams, Stryker Brigade Combat Teams, Airborne, Ranger and Special Forces Units and Heavy Brigade Combat Teams.		0.117 0	1.544 0
<b>Title:</b> Engineering and Manufacturing Development (EMD) phase contract activity for the Up-Armored HMMWV and Armored Security Vehicle (ASV) variants of the Reconfigurable Vehicle Simulator.  <b>Articles:</b>  <b>Description:</b> Continue EMD phase contract activities for the Up-Armored HMMWV and Armored Security Vehicle (ASV) variants of the Reconfigurable Vehicle Simulator.  <b>FY 2010 Accomplishments:</b> Development of the Up-Armored HMMWV and Armored Security Vehicle (ASV) variants of the Reconfigurable Vehicle Simulator.  <b>FY 2011 Plans:</b> Development of the Up-Armored HMMWV variant of the Reconfigurable Vehicle Simulator.		4.345 0	2.888 0
<b>Accomplishments/Planned Programs Subtotals</b>		4.690	4.668
			4.139
			-
			4.321

**UNCLASSIFIED**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Army			<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604780A: <i>Combined Arms Tactical Trainer</i> (CATT) Core	<b>PROJECT</b> 571: <i>CLOSE CBT TACT TRAINER</i>	

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPA3, Appropriation NA0170 SIMNET/C: OPA3, Appropriation NA0170 SIMNET/CCTT	64.954	73.112	17.760		17.760		27.068	26.511	30.895	Continuing	Continuing

**D. Acquisition Strategy**

FY2012 will enable Pre-Planned Product Improvements (P3I) for the Dismounted Soldier System.

**E. Performance Metrics**

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

**UNCLASSIFIED**

## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army											DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT					
2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				PE 0604780A: Combined Arms Tactical Trainer (CATT) Core				571: CLOSE CBT TACT TRAINER					
<b>Management Services (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Program Management	Various	PEO STRI:Orlando, FL	16.435	0.236		0.182		-		0.182	Continuing	Continuing	Continuing
<b>Subtotal</b>			16.435	0.236		0.182		-		0.182			
<b>Product Development (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development of the Up-Armored HMMWV variant for RVS	C/CPFF	Lockheed Martin Corporation:Orlando, FL	1.015	2.888		-		-		-	Continuing	Continuing	Continuing
Development of CCTT Dismounted Soldier System	C/FFP	TBS:TBS	1.424	1.544		4.139		-		4.139	Continuing	Continuing	Continuing
<b>Subtotal</b>			2.439	4.432		4.139		-		4.139			
			Total Prior Years Cost	<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			18.874	4.668		4.321		-		4.321			
<b>Remarks</b>													

UNCLASSIFIED

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army								DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604780A: Combined Arms Tactical Trainer (CATT) Core				PROJECT 577: Gaming Technology in Support of Army Training			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
577: Gaming Technology in Support of Army Training	0.914	0.937	1.429	-	1.429	1.334	2.020	0.881	1.478	Continuing	Continuing
Quantity of RDT&E Articles											
A. Mission Description and Budget Item Justification											
The Games for Training (GFT) program will provide a commercial-off-the-shelf (COTS) product line of personal computer based gaming applications to train Soldiers in decision-making, team and individual tasks at different skill levels, using multiple mission scenarios. The program will leverage the commercial game industry to provide state of the art training solutions. The program will provide Army-wide licenses from the commercial market, or from Research and Development agencies, and the hardware required to operate the systems. The individual products will permit Soldiers and units to conduct training in a real-time, semi-immersive environment that will leverage Synthetic Environment Core (SE Core) capabilities and operate in the Live, Virtual and Constructive Integrated Training Environment (LVC-ITE).											
FY12 core funding of 1.429 million will integrate SE Core products and new commercial and government technology into the current gaming systems.											
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2010	FY 2011	FY 2012	
<b>Title:</b> Engineering and Manufacturing Development (EMD) phase contract activity for the Games for Training (GFT) program. <b>Articles:</b>  <b>Description:</b> Continue EMD phase contract activities for the GFT program.  <b>FY 2010 Accomplishments:</b> Funding provided modifications to the system to integrate and provide interoperability with battle command systems and other simulators and simulations in support of home station training and Overseas Contingency Operations (OCO).  <b>FY 2011 Plans:</b> Funding will provide modifications to the system to integrate and provide interoperability with battle command systems and other simulators and simulations in support of home station training and Overseas Contingency Operations (OCO).  <b>FY 2012 Plans:</b> Funding will provide modifications to the system to integrate and provide interoperability with medical training systems, battle command systems and other simulators and simulations in support of home station training and Overseas Contingency Operations (OCO).								0.759	0.788	1.133	
								0	0		
<b>Title:</b> Government Program Management for the Games for Training (GFT) program. <b>Articles:</b>								0.155	0.149	0.296	
								0	0		

**UNCLASSIFIED**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Army							<b>DATE:</b> February 2011				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>			<b>R-1 ITEM NOMENCLATURE</b> PE 0604780A: <i>Combined Arms Tactical Trainer</i> (CATT) Core			<b>PROJECT</b> 577: <i>Gaming Technology in Support of Army Training</i>					
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>							<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>		
<b>Description:</b> Government Program Management for the GFT program.  <b>FY 2010 Accomplishments:</b> Supported Government program management, engineering, technical, contract and test support for Gaming.  <b>FY 2011 Plans:</b> Supports Government program management, engineering, technical, contract and test support for Gaming.  <b>FY 2012 Plans:</b> Supports Government program management, engineering, technical, contract and test support for Gaming.											
<b>Accomplishments/Planned Programs Subtotals</b>							0.914	0.937	1.429		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPA 3, Appropriation NA0176 Gaming: <i>OPA 3, Appropriation</i> <i>NA0176 Gaming Technology in</i> <i>Support of Training</i>	7.846	4.964								0.000	12.810
<b>D. Acquisition Strategy</b>											
Competitive contract against the approved Capabilities Production Document (CPD), dated 18 Sep 08.											
<b>E. Performance Metrics</b>											
Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.											

**UNCLASSIFIED**



**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2012 Army											<b>DATE:</b> February 2011		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				<b>R-1 ITEM NOMENCLATURE</b> PE 0604780A: Combined Arms Tactical Trainer (CATT) Core				<b>PROJECT</b> 577: Gaming Technology in Support of Army Training					

  

<b>Management Services (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Government Program Management	Various	PEO STRI:Orlando, FL	-	0.149		0.296		-		0.296	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	0.149		0.296		-		0.296			

  

<b>Product Development (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Games for Training	Various	PEO STRI:Orlando, FL	-	0.788		1.133		-		1.133	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	0.788		1.133		-		1.133			

  

			<b>Total Prior Years Cost</b>	<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	0.937		1.429		-		1.429			

  

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Army								<b>DATE:</b> February 2011			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0604780A: <i>Combined Arms Tactical Trainer (CATT) Core</i>				<b>PROJECT</b> 582: <i>SYNTHETIC ENVIR CORE</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
582: <i>SYNTHETIC ENVIR CORE</i>	17.245	20.073	13.927	-	13.927	9.450	8.587	15.794	9.673	Continuing	Continuing
Quantity of RDT&E Articles											
<b>A. Mission Description and Budget Item Justification</b> <p>This project supports the Synthetic Environment Core (SE Core) Program. SE Core is a key U.S. Army initiative specifically designed to enhance the training capability we provide our Warfighters. SE Core's mission is to ensure the Army's virtual training systems and simulators are fully integrated and interoperable in order to conduct Contemporary Operating Environment and Combined Arms training. It takes stand alone training systems that were not envisioned to work together and provides a method to have meaningful interoperable training. SE Core provides visual models, terrain, and entity behaviors that are more life-like than simulators have in the past. The result is a "Fair Fight" capability; no simulator will have an inherent advantage over another, allowing for air and ground coordination and integrated training missions that accurately replicate combat operations being experienced in the Contemporary Operational Environment (COE). SE Core provides the capability that is sufficient for current and future combat operations training, Mission Rehearsal, and COE training. SE Core reduces redundancies within simulators and increases realism. SE Core is building the Army's Common Virtual Environment (CVE) that not only provides the linkage between simulators but establishes a common environment for interoperability. Additionally, SE Core links to the Integrated Training Environment (ITE) for an integrated capability to support ARFORGEN and the Combined Arms Training Strategy. SE Core is a foundational element in the Army's Training Transformation Plan linking the embedded systems, multi-mode Live, Virtual, Constructive (LVC) training capability with current systems.</p> <p>SE Core enables the Army to execute combined arms and joint training, mission planning and rehearsals at home station and deployed locations critical to training for COE operations. SE Core continues to integrate a series of interoperable software components for the Army's CVE and facilitates interoperability in a LVC Integrated Training Environment (ITE). The components are One Semi-Automated Forces (OneSAF) integration; terrain database production; common visual models; a virtual systems architecture; a dynamic environment; battle command development; and being net ready. A major SE Core component is the Standard Terrain Database Generation Capability (STDGC) process used to produce the synthetic terrain used in simulators. The STDGC uses an open format that can be translated into correlated runtime terrain databases to support the LVC ITE and for mission planning/rehearsal/execution in support of Overseas Contingency Operations (OCO). This terrain is currently used by four virtual simulators and expanding to others. This has reduced redundancy, increased realism and facilitates an integrated LVC ITE.</p> <p>FY12 core funding of \$13.927 million will provide for common terrain databases to be generated by the Terrain Database Center (TDC). The TDC continues development and refinement of the STDGC. FY2012 funds will continue to enhance OneSAF in the SE Core Architecture, CCTT, AVCATT and other virtual simulator baselines. Maintaining OneSAF for virtual simulations enables interoperability with the LVC ITE and reduces cost as individual virtual simulators will no longer develop and maintain separate SAFs. The SE Core Product Line of Common Virtual Components will continue with upgrades, integration and refinement, and the continued development of common visual models.</p>											
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>								<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	
<b>Title:</b> Engineering and Manufacturing Development (EMD) phase contract activity for the Synthetic Environment Core (SE Core) program.								14.485 0	16.869 0	12.043	

**UNCLASSIFIED**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Army		<b>DATE:</b> February 2011		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604780A: <i>Combined Arms Tactical Trainer</i> (CATT) Core	<b>PROJECT</b> 582: <i>SYNTHETIC ENVIR CORE</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<p align="right"><b>Articles:</b></p> <p><b>Description:</b> Continue EMD phase contract activities for the SE Core program.</p> <p><b>FY 2010 Accomplishments:</b> SE Core provided common terrain databases to the CCTT, AVCATT, CDT, CFFT, and other programs. Continued operation of the Terrain Database Center and expanded production capabilities to meet increased product demand. Continued refinement of the STDGC and incorporated advanced automated processing tools. Integration of virtual requirements into OneSAF continued. These requirements were integrated into the SE Core Architecture. Common Moving Model development also continued. SE Core continued work on six Key Performance Parameters defined in the Operational Requirements Document: OneSAF Integration, Standard Terrain Process Capability, Dynamic Terrain, Atmospheric Effects, Net Ready and C4ISR. SE Core began to transition to a new Capabilities Development Document (CDD) with seven KPPs.</p> <p><b>FY 2011 Plans:</b> SE Core will continue providing terrain databases to programs and improving the STDGC to increase efficiencies and increasing production outputs. SE Core will continue integration of virtual requirements (new Contemporary Operating Environment and IED behaviors) into OneSAF. SE Core stands up a virtual systems Architectural Management process that evaluates and consolidates virtual training requirements into common components to reduce redundancy and increase commonality.</p> <p><b>FY 2012 Plans:</b> Provides terrain databases to an expanded number of programs in support of the Integrated Training Environment (ITE). Architectural Management continues evaluation of virtual training requirements to harmonize the requirements throughout the virtual training domain as well as the Constructive and Live training domains. This is to ensure interoperability within the ITE. Continues to provide OneSAF the consolidated virtual SAF requirements.</p>				
<p><b>Title:</b> Government Program Management for the Synthetic Environment Core (SE Core) program.</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Government Program Management for the SE Core program.</p> <p><b>FY 2010 Accomplishments:</b> Provided program management, engineering and technical oversight, contract support, and test support (including travel for Subject Matter Experts) for the SE Core program.</p> <p><b>FY 2011 Plans:</b></p>		2.760 0	3.204 0	1.884

**UNCLASSIFIED**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Army							<b>DATE:</b> February 2011				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0604780A: <i>Combined Arms Tactical Trainer</i> (CATT) Core			<b>PROJECT</b> 582: <i>SYNTHETIC ENVIR CORE</i>				
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>							<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>		
Provides program management, engineering and technical oversight, contract support, and test support (including travel for Subject Matter Experts) for development of SE Core.											
<b>FY 2012 Plans:</b> Provides program management, engineering and technical oversight, contract support, and test support (including travel for Subject Matter Experts) for development of SE Core.											
<b>Accomplishments/Planned Programs Subtotals</b>							17.245	20.073	13.927		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPA3, Appropriation NA0173 <i>Aviation: OPA3, Appropriation NA0173 Aviation Combined Arms Tactical Trainer</i>	12.755	26.120	9.413		9.413		18.483	9.871	17.813	Continuing	Continuing
• OPA3, Appropriation NA0170 <i>CCTT: OPA3, Appropriation NA0170 Close Combat Tactical Trainer (CCTT)</i>	64.954	73.112	17.760		17.760		27.068	26.511	30.895	Continuing	Continuing
• RDTE, Appropriation 654760: <i>RDTE, Appropriation 654760 One Semi-Automated Forces (OneSAF)</i>	11.222	11.522	10.998		10.998		12.393	12.260	12.402	Continuing	Continuing
<b>D. Acquisition Strategy</b> An extension to the Architecture & Integration (A&I) contract was awarded to Science Applications International Corp (SAIC) in 2Q09. A competitive, CPFF type contract for the development of SE Core Database Virtual Environment Development (DVED) project was awarded in FY06 to CAE with yearly options until FY11. Program is currently re-competing both of these contracts. The outcome will be a single contractor.											
<b>E. Performance Metrics</b> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.											

**UNCLASSIFIED**

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army											DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604780A: Combined Arms Tactical Trainer (CATT) Core				PROJECT 582: SYNTHETIC ENVIR CORE						
Management Services (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Government Program Management Support	Various	PEO STRI:Orlando, FL	10.175	2.640		1.884		-		1.884	Continuing	Continuing	Continuing	
Management Services	Various	Various:Various	2.578	0.564		-		-		-	Continuing	Continuing	Continuing	
Subtotal			12.753	3.204		1.884		-		1.884				
Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Technology Development - Test Support	Various	Test Community:Various	0.125	-		-		-		-	Continuing	Continuing	0.000	
Technology Development - Architecture and Integration	C/CPFF	TBD:TBD	-	6.946		-		-		-	0.000	6.946	6.946	
Technology Development - Database Virtual Environment Development	C/CPFF	CAE, USA:Orlando, FL	37.925	9.923		-		-		-	Continuing	Continuing	Continuing	
Technology Development - Contractor TBD	C/CPFF	TBD:TBD	-	-		12.043		-		12.043	Continuing	Continuing	Continuing	
Subtotal			38.050	16.869		12.043		-		12.043				
Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Technology Development - Test Support	Various	Test Community:Various	0.125	-		-		-		-	Continuing	Continuing	0.000	
Subtotal			0.125	-		-		-		-			0.000	
Remarks Not Applicable														

**UNCLASSIFIED**

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2012 Army						<b>DATE:</b> February 2011		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>			<b>R-1 ITEM NOMENCLATURE</b> PE 0604780A: <i>Combined Arms Tactical Trainer (CATT) Core</i>			<b>PROJECT</b> 582: <i>SYNTHETIC ENVIR CORE</i>		

	Total Prior Years Cost	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	50.928	20.073	13.927	-	13.927			

**Remarks**

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army									DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604780A: Combined Arms Tactical Trainer (CATT) Core				PROJECT 585: AVIATION COMBINED ARMS TACTICAL TRAINER			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
585: AVIATION COMBINED ARMS TACTICAL TRAINER	2.392	1.992	2.549	-	2.549	2.553	2.691	2.522	2.705	Continuing	Continuing
Quantity of RDT&E Articles											

## A. Mission Description and Budget Item Justification

This project supports the Aviation Combined Arms Tactical Trainer (AVCATT) which is the Army's Aviation Collective training system for Active, Reserve and Army National Guard components to provide home station training and mission rehearsal and training in support of Overseas Contingency Operations (OCO). AVCATT completed Initial Operational Test & Evaluation (IOT&E) on 1 August 2003 and received a Full Rate Production Decision on 19 December 2003. A single suite of equipment consists of two mobile trailers housing six reconfigurable networked simulators that support the AH-64A/D, UH-60A/L, CH-47D, and OH-58D aircraft. Supporting roleplayer, Semi-Automated Forces (SAF), and after action review (AAR) workstations are also provided as part of each suite. AVCATT is a fully mobile system capable of using shore and generator power and is transportable worldwide. The AVCATT system permits aviation units to conduct collective task training on a real-time, virtual battlefield in a combined arms scenario by leveraging Synthetic Environment Core (SE Core) capabilities. Other required elements that are present on the modern, high intensity battlefield, such as the Combat Support (CS) and Combat Service Support (CSS) elements, are an integral part of the simulation database. AVCATT is designed to provide realistic, high intensity collective and combined arms training to aviation units as well as the full spectrum of operations in support of current and future contingency operations. AVCATT supports the Aviation Combined Arms Training Strategy, the Army Forces Generation (ARFORGEN) and OCO. AVCATT also supports the Aviation Functional Area Assessment (FAA), providing collective, combined arms training for aviation units.

FY12 core funding of \$2.549 million will develop the capability for AVCATT to interoperate with real and simulated Army Battle Command Systems (ABCS) such as Blue Force Tracker (BFT), Force XXI Command Brigade (FBCB2), Advanced Field Artillery Tactical Data Systems (AFATDs) and others.

## B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<b>Title:</b> Engineering and Manufacturing Development (EMD) phase contract activity for the Aviation Combined Arms Tactical (AVCATT) program.	2.338	1.822	2.549
<b>Articles:</b>	0	0	
<b>Description:</b> Continue EMD phase contract activities for the AVCATT program.			
<b>FY 2010 Accomplishments:</b> Integration of Non-Rated Crew Member Manned Module (NCM3) First Article into the AVCATT program baseline.			
<b>FY 2011 Plans:</b>			

UNCLASSIFIED

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Army							<b>DATE:</b> February 2011				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>			<b>R-1 ITEM NOMENCLATURE</b> PE 0604780A: <i>Combined Arms Tactical Trainer</i> (CATT) Core			<b>PROJECT</b> 585: <i>AVIATION COMBINED ARMS TACTICAL TRAINER</i>					
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>							<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>		
Conducting a technology refresh of various components of AVCATT. Examples include Servo Control Modules, Battle Master Controller and After Action Review computers and various projectors.  <b>FY 2012 Plans:</b> Develop the capability for AVCATT to interoperate with real and simulated Army Battle Command (ABCS) such as BFT, FBCB2, AFATDs and others.											
<b>Title:</b> Government Program Management for the Aviation Combined Arms Tactical Trainer (AVCATT) program.  <b>Description:</b> Government Program Management for the AVCATT program.  <b>FY 2010 Accomplishments:</b> Supported Government program management, engineering, technical, contract, and test support for AVCATT refinements.  <b>FY 2011 Plans:</b> Supports Government program management, engineering, technical, contract, and test support for AVCATT refinements.							<b>Articles:</b> 0.054 0	0.170 0	-		
<b>Accomplishments/Planned Programs Subtotals</b>							2.392	1.992	2.549		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPA3, Appropriation NA0173	12.755	26.120	9.413		9.413		18.483	9.871	17.813	Continuing	Continuing
Aviation: OPA3, Appropriation NA0173 Aviation Combined Arms Tactical Trainer											
<b>D. Acquisition Strategy</b>											
Operations and Support competitive contract against a performance specification.											
<b>E. Performance Metrics</b>											
Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.											

**UNCLASSIFIED**



**UNCLASSIFIED**

### Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Army			DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE		PROJECT	
2040: Research, Development, Test & Evaluation, Army		PE 0604780A: Combined Arms Tactical Trainer		585: AVIATION COMBINED ARMS TACTICAL	
BA 5: Development & Demonstration (SDD)		(CATT) Core		TRAINER	

	FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NCM3 Integration																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2012 Army			<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604780A: <i>Combined Arms Tactical Trainer (CATT) Core</i>	<b>PROJECT</b> 585: <i>AVIATION COMBINED ARMS TACTICAL TRAINER</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NCM3 Integration	1	2010	1	2012

**UNCLASSIFIED**